UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

OCT 1 3 2004

Ms. Mary Lou Capichioni
Director
Remediation Services
Corporate Environmental Services
The Sherwin-Williams Company
101 Prospect Avenue, N.W.
Cleveland, OH 44115-1075

Re: Approval of the November 2003 Revised Work Plan for RI/FS Activities, Field Sampling Plan (SAP), Quality Assurance Project Plan(QAPP) and June 2004 Addendum #1 to the Revised Work Plan for RI/FS Activities; Gibbsboro, NJ

Dear Ms. Capichioni:

Pursuant to the September 30, 1999 Administrative Order on Consent for the Remedial Investigation/Feasibility Study (AOC for the RI/FS), the U.S. Environmental Protection Agency (EPA) approves the November 2003 Revised Work Plan, SAP, QAPP and June 2004 Work Plan Addendum #1 (in accordance with the June 9, 2004 EPA letter "Work Plan for RI/FS Activities; Gibbsboro, NJ - Addendum #1") for RI/FS Activities at the U.S. Ave Burn, Rt. 561 Dump, and Hilliards Creek sites in Gibbsboro, NJ.

Based upon the request from the Sherwin Williams Company, EPA is currently reviewing the August 16, 2004 Remedial Investigation Work Plan Implementation Sequence (Implementation Strategy); Gibbsboro, NJ and will be providing separate comments regarding implementation of the RI/FS field work.

Under paragraph 40 of the AOC for RI/FS, the respondent is required to provide EPA at least fourteen (14) days advance notice of all field work or field activities for work conducted under the AOC for the RI/FS.

Please contact Mr. Ray Klimcsak, of my staff, at (212) 637- 3916 to establish a schedule for the initiation of RI/FS field work. If you have any legal concerns, please contact Mr. Carl Howard, Esq., at (212) 637-3216.

Sincerely yours,

Carole Petersen, Chief
New Jersey Remediation Branch

255088

cc: Allen Danzig, Esq., SWC
John Gerulis, SWC
Daniel Kopcow, Weston
John Doyon, NJDEP
H. Martin, ELM
Susanne Peticolas, Gibbons, Del Deo, Dolan, Griffinger, & Vecchione
Lynn Arabia, TtFWI

The Sherwin-Williams Company
Environmental, Health & Regulatory Services
101 Prospect Avenue, N.W.
Cleveland, Ohio 44115-107N
Facsimile: (216) 566-2730

July 21, 2004

Ms. Carole Peterson, Chief
New Jersey Remediation Branch
U.S. Environmental Protection Agency - Region 2
290 Broadway 19th Floor
New York, NY 10007-1866

RE: Addendum #1
Work Plan for RI/FS Activities; Gibbsboro, NJ

Dear Ms. Peterson:

As requested by the U.S. Environmental Protection Agency (EPA) in your letter of June 9, 2004, The Sherwin-Williams Company (Sherwin-Williams) is submitting Addendum #1 to the Work Plan for RI/FS Activities, Gibbsboro, New Jersey dated November 2003. As stated in the EPA letter, this Addendum is comprised of EPA's letter of June 9, 2004 and the following technical letters submitted by Sherwin-Williams:

1. Data Validation, March 8, 2004
2. Metals and Cyanide Analysis, March 30, 2004
3. Proposed MEDD Submittals, March 30, 2004
4. Proposed Change to the Sample Identification Scheme, March 30, 2004

This Addendum should be placed in front of Volume I (Work Plan), Volume IV (SAP), and Volume V (QAPP) of the November 2003 Work Plan. For your convenience, Sherwin-Williams is providing three copies of the Addendum for each of the 7 Work Plan sets submitted to EPA in November 2003.

If you have any questions or comments, please do not hesitate to contact me at 216-566-1794 or via e-mail at mlcapichioni@sherwin.com.

Sincerely,

Mary Lou Capichioni

Mary Lou Capichioni
Director, Remediation Services

Encl.

cc: Allen Danzig, Esq. Sherwin-Williams (3 copies)
John Gerulis, Sherwin-Williams (3 copies)
John Doyon, NJDEP (6 copies)
Susanne Peticolas, Esq. (3 copies)
Lynn Arabia, TtFWI (3 copies)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

JUN - 9 2004

CERTIFIED MAIL
RETURN RECEIPT REQUESTED-

Ms. Mary Lou Capichioni
Director
Remediation Services
Corporate Environmental Services
The Sherwin-Williams Company
101 Prospect Avenue, N.W.
Cleveland, Ohio 44115-1075

Re: Work Plan for RI/FS Activities; Gibbsboro, NJ
Addendum #1

Dear Ms. Capichioni:

The U.S. Environmental Protection Agency (EPA) has completed its review of the letters from the Sherwin-Williams Company (SWC) dated March 8, 2004 and March 30, 2004 with regards to items raised during a January 15, 2004 meeting between EPA, its contractor, Tetra Tech FW, Inc. (TtFWI), SWC, and its contractor, Weston Solutions, Inc. (Weston), subsequent questions raised by EPA on February 24, 2004 on SWC's electronic data validation process specified during the meeting, and two additional letters from SWC dated March 30, 2004 with regards to changing the sampling method for metals and cyanide analyses and proposed changes to the sample identification scheme not raised during the January 15, 2004 meeting.

1. Time Frame for Submission of Validated Data:

During the January 15, 2004 meeting SWC requested that validated data be submitted within forty-five (45) *workdays* of each sampling activity as opposed to 45 *calendar* days after being validated. EPA shall allow SWC to submit the validated data within 45 workdays of each sampling activity on CD-ROM.

2. Monthly Progress Report:

During the January 15, 2004 meeting SWC asked if it would be satisfying its requirements specified in the September 1999 RI/FS AOC if its monthly progress reports were accessible through its internet applications (TeamLink, ArcIMS) for EPA to download itself if the Agency needed a hard-copy for its Record Center files.

In addition, SWC asked if EPA would need to see the raw data before it was validated. EPA requests that SWC submit at least two copies of the monthly progress report in writing, however the progress report does not need to include all data received or generated by or on behalf of SWC during the previous month. The progress report should specify that data is accessible through its internet application and denote its web location. Raw data that will be going through the validation process does not need to be included in the written monthly progress report.

3. Analytical Method for Metals and Cyanide:

In a letter dated March 30, 2004 SWC proposed using another sampling method for metals and cyanide analyses than what was initially proposed in the draft RI/FS Work Plan, CLP SOW method ILMO5.2. SWC proposed using method SOW ILMO4.1 in the March 30, 2004 letter. EPA shall allow SWC to use the alternative method, SOW ILMO4.1.

4. Proposed Changes to the Sample Identification Scheme:

In a letter dated March 30, 2004 SWC proposed changes to the sampling identification scheme specified in Section 5.6 of the Quality Assurance Project Plan (QAPP). EPA shall allow SWC to use the alternate scheme as specified in the March 30, 2004 letter.

5. Electronic Data Validation Proposal:

Based on our review of the information submitted by SWC in a letter dated March 8, 2004, received by EPA on March 23, 2004, to address questions raised by EPA in mid-February 2004 subsequent to the January 15, 2004 meeting, it is apparent that the system that SWC proposes to use to electronically validate data, Technical Data Management Systems (TDMS), does not accomplish all the tasks required by EPA data validation protocols. Comment #5 specified in an attachment to this letter lists the specific EPA Region 2 validation criteria that TDMS does not validate. Nonetheless, the TDMS can be used for the validation criteria that it can evaluate electronically while all of the remaining parameters must be validated manually. All of the data obtained by this project shall be validated using EPA Region 2 data validation SOPs. If SWC can demonstrate that the TDMS provides acceptable results for data validation during the first round of sampling, a reduction of this requirement may be considered.

Please provide the information requested in the enclosure within twenty-one (21) days from the date of receipt of this letter. The forthcoming RI field work will not be delayed during the interim period that SWC is gathering, and EPA is reviewing, the information requested in the enclosure.

6. Multimedia Electronic Data Deliverable (MEDD):

In a letter dated March 30, 2004 SWC provided EPA with clarity on data associated with the sample analysis that cannot be extracted easily from TDMS and exported to the Multimedia Electronic Data Deliverable (MEDD) format requested by EPA. In addition, SWC requested a conference call to seek clarification on a few issues related to several "valid values" identified in the data dictionary. EPA believes a conference call would be beneficial to address the questions SWC may have; and, to discuss EPA's concerns about the first three bullet items ("Analysis_date", "Analysis_time", and "Test_type") specified under the title, *Test Results Table,* in the March 30, 2004 letter not being easily exported to the MEDD from the TDMS. Based on your letter, EPA understands that this information would not be able to be transferred from the TDMS' Central database where SWC stores the validated data for export to the MEDD. However, since this data will be stored in the TDMS' Master database with all raw data reported from the lab including QA/QC information, EPA would like to discuss the ability of SWC to export the aforementioned bullet items from the TDMS' Master database to meet the needs of EPA for the MEDD. The goal is to load electronic data (e.g., coordinates of environmental sample locations, sample information, sampling results, etc.) from SWC's proposed TDMS into databases at EPA to facilitate data review, mapping, and decision making.

7. Soil Sampling Intervals in the Wetland and Floodplain Areas (Vicinity of Shallow Groundwater):

During the January 15, 2004 meeting SWC requested that less than three intervals per soil sample location be taken if sampling near shallow groundwater. Subsequent to the meeting, SWC provided in a March 30, 2004 letter its recommendation for changing the soil sampling interval in wetland and floodplain areas. Language related to soil sampling intervals for the following areas are revised as follows with regards to the RI/FS Work Plan:

a. Groundwater at 2 feet or Shallower:

i. Inside Perimeter of Fence at U.S. Ave Burn & Route 561 Dump Sites and between Foster Avenue and W. Clementon Road Along the Hilliard's Creek Site:

In areas, such as in wetlands and floodplain areas, where the water table is at two (2) feet below ground surface (bgs) or shallower, the soil sampling interval is revised to state the following:

Soil samples will be collected at two intervals at each location: one from the ground surface to approximately 24 inches bgs depending on the soil sample being taken (e.g., metals, VOCs, etc.) and the composition of the soil (e.g., percentage of

silt/clay); and one between six (6) inches and twelve (12) inches within the water table. The cores will be field-screened with a properly calibrated PID/FID or other suitable instrument. If all intervals register the same measurement, the sample interval will be selected based on soil type and biased toward intervals of discolored soil. Sampling locations may be re-located and biased toward the observation of discolored soils, stressed vegetation, odor, drainage patterns, and/or areas suspected of containing contaminated materials. Similar to what SWC recommended in its March 30, 2004 letter for areas where the groundwater is two feet bgs or shallower, if evidence of contamination is noted below the last sample interval, then additional samples may be collected, or the last sample interval may be relocated, below the deepest interval in order to define the extent of contamination.

In areas, such as in wetlands and floodplain areas, where the water table is less than one (1) foot bgs, then VOCs will not be collected.

ii. *Areas Beyond the Fence Lines at the U.S. Ave Burn & Route 561 Dump Sites and Past W. Clementon Road Along the Hilliard's Creek Site:*

In areas, such as in wetlands and floodplain areas, where the water table is at two (2) feet bgs or shallower, the soil sampling interval is revised to state the following:

Soil samples will be collected at one interval at each location: one from the ground surface to approximately 24 inches bgs depending on the soil sample being taken (e.g., metals, VOCs, etc.) and the composition of the soil (e.g., percentage of silt/clay). The cores will be field-screened with a properly calibrated PID/FID or other suitable instrument. If all intervals register the same measurement, the sample interval will be selected based on soil type and biased toward intervals of discolored soil. Sampling locations may be re-located and biased toward the observation of discolored soils, stressed vegetation, odor, drainage patterns, and/or areas suspected of containing contaminated materials. As SWC recommended in its March 30, 2004 letter for areas where the groundwater is two feet bgs or shallower, if evidence of contamination is noted below this sample interval, then additional samples will be collected below the deepest interval in order to define the extent of contamination.

In areas, such as in wetlands and floodplain areas, where the water table is less than one (1) foot bgs, then VOCs will not be collected.

b. *Groundwater Greater than 2 feet bgs and Less than 4 feet bgs:*

In areas, such as in wetlands and floodplain areas, where the water table is greater than two (2) feet bgs and less than 4 feet bgs, the soil sampling interval is revised to state the following for all areas being investigated as part of this RI/FS:

Soil samples will be collected at two intervals at each location: one from the ground surface to approximately 24 inches bgs depending on the soil sample being taken (e.g., metals, VOCs, etc.) and the composition of the soil (e.g., percentage of silt/clay); and one within the interval of 2 feet bgs and six (6) inches above the water table. The cores will be field-screened with a properly calibrated PID/FID or other suitable instrument. If all intervals register the same measurement, the sample interval will be selected based on soil type and biased toward intervals of discolored soil. Sampling locations may be relocated and biased toward the observation of discolored soils, stressed vegetation, odor, drainage patterns, and/or areas suspected of containing contaminated materials. As SWC recommended in its March 30, 2004 letter, if the water table is greater than 2 feet bgs but less than 2.5 feet bgs, then no second sample interval will be collected unless evidence of contamination is noted below this sample interval, then additional samples will be collected below the deepest interval in order to define the extent of contamination.

c. *Groundwater at 4 feet bgs or Greater:*

Soil samples will be collected at the intervals currently specified in the RI/FS Work Plan for all areas being investigated as part of this RI/FS:

Soil samples will be collected at three intervals at each location: one from the ground surface to approximately 24 inches bgs depending on the soil sample being taken (e.g., metals, VOCs, etc.) and the composition of the soil (e.g., percentage of silt/clay); one 6 inches above the water table; and one between the ground surface and the water table. The cores will be field-screened with a properly calibrated PID/FID or other suitable instrument. If all intervals register the same measurement, the sample interval will be selected based on soil type and biased toward intervals of discolored soil. Sampling locations may be re-located and biased toward the observation of discolored soils, stressed vegetation, odor, drainage patterns, and/or areas suspected of containing contaminated materials.

8. Sample Locations in Areas where Previous Actions have already been taken:

Since transects will be spaced every two hundred feet along Hilliard's Creek for this first phase of the RI/FS, SWC needs to be cognizant to avoid placing any of the transects in areas where SWC may have already taken some type of action in the past for the regulatory agencies such as the area located in proximity to the Gibbsboro Police Station and the former pump house station on the Paint Works Corporate Center. SWC needs to mark and/or stake-out the perimeter of the areas excavated during these previous actions when staking out the location of the various transects along Hilliard's Creek in order for EPA and/or its contractor to visually confirm that the transects are not being located in these areas. A similar approach will need to be taken when locating soil sampling borehole locations, and the initial sampling interval per borehole location, in areas of a residential property

where SWC conducted a removal action in the Fall of 2003.

Similar to the approach SWC will be taking at the residential properties, SWC should conduct interviews with property owners or residents at all of the other locations being sampled as part of this RI/FS field work prior to conducting the sampling to determine if past activities that they may have conducted, or were aware of, has disturbed the areas being sampled. This was an issue that the Mayor of Gibbsboro, Edward Campbell, raised during our mutual meeting with him on March 6, 2004 since he believed there were locations that he felt may be part of the RI/FS field work where soil may have been moved about, cleared, or additional soil/fill may have been brought onto the property. EPA also requires SWC to provide EPA a copy of the interviewees responses to the questions asked to them since sampling points and/or intervals may need to be changed based on their responses.

9. <u>Residential Properties Collecting Samples at Fifteen Soil Borehole Locations:</u>

As was specified by EPA to SWC in a November 6, 2003 letter (i.e., item # 5.iii), EPA wishes to see figures showing the distribution of the soil sampling borehole locations per residential property after SWC completes interviewing the property owners or residents as to whether soil or sediments from within the 100-year flood plain have been excavated and moved to other portions of the property prior to conducting the residential sampling field work. EPA also requires SWC to provide EPA a copy of the interviewees responses to the questions asked to them.

Please incorporate this letter and its attachment as Addendum #1 to the RI/FS Work Plan, in addition to SWC's March 8, 2004 letter on electronic data validation and its March 30, 2004 letters on: (1) analytical methods for metals and cyanide; (2) sample identification scheme; and (3) MEDD. EPA's letter and the aforementioned letters from SWC should be placed in the front of Volumes I (Work Plan), IV (SAP), and V (QAPP).

As specified under paragraph 31 of the AOC for a RI/FS, EPA retains the right in its sole discretion to seek stipulated or statutory penalties, perform its own studies, complete the RI/FS (or any portion of the RI/FS) under CERCLA and the NCP, and seek reimbursement from the Respondent for its costs; and/or seek any other appropriate relief.

If you have any questions on this matter, you may contact Mr. Emmet Keveney, P.E., of my staff, at (212) 637-3916, or if you have any legal concerns, Mr. Carl Howard, Esq., at (212) 637-3216.

Sincerely yours,

Carole Petersen, Chief
New Jersey Remediation Branch

Enclosures

cc: Allen Danzig, Esq., SWC w/encls.
John Gerulis, SWC w/o encls.
Daniel Kopcow, Weston w/encls.
John Doyon, NJDEP w/encls.
Susanne Peticolas, Gibbons, Del Deo, Dolan, Griffinger, & Vecchione w/o encls.
Lynn Arabia, TtFWI w/encls.

Electronic Data Validation Proposal
U.S. Ave. Burn, Route 561 Dump, and Hilliard's Creek Sites

1. No. (1) (i), page 1. It is stated that in Regions 1, 5, and 7 the use of the Technical Data Management System (TDMS) data validation has been accepted when a percentage of the data has also been subjected to manual data validation. It should be specified what percentage of data was manually validated overall for these Regions.

2. No. (1) (v), pages 2 and 3. It is stated that for the TDMS data evaluation tool, codes are set according to EPA Region 2 data validation SOP's and, as applicable, the National Functional Guidelines and State Agency-specified criteria. It should be noted that the most recent data validation USEPA Region 2 SOPs are located at: http://www.epa.gov/region2/desa/hsw/sops.htm. Since data validation SOP's are occasionally updated, it should be specified what mechanism is in place to ensure updated data validation criteria are incorporated into the TDMS, including frequency of review.

3. No. (2) (i), page 3. It is stated that formal SOP's have not been written for the automated validation process of TDMS, and that a user manual has been prepared that describes how to use the tool. A SOP should be developed referencing this user manual and including the majority of the information provided for this question response, as well as any other procedures and documentation necessary for TDMS operation.

4. No. (4), page 5. It is stated that data is manually inspected where TDMS assigns any U or R flags. It should be specified what forms or documentation are used to indicate that data has undergone manual validation, including checklists, data assessments signed by the manual data validator (reviewer), etc.

5. No. (6), page 6. Table 1 is referenced for a description of those QA / QC checks that TDMS can perform. It is stated that, generally, any checks that can be performed without interpretation will be performed by TDMS. In Table 1, TDMS does not include the following validation criteria when compared to the USEPA Region 2 data validation SOPs.:

   - Organics: Storage blanks, GC/MS tuning, correct identification of the target compound, tentatively identified compounds, stable baseline reconstructed ion chromatograms, initial and continuing calibrations, and internal standards.

   - Pesticides / PCBs: Instrument blanks, stable chromatogram baselines, calibration and GC performance, analytical sequence check, cleanup efficiency, and pesticide / PCB identification criteria.

   - Inorganics: pH check, calibration verification, ICP interference check sample, ICP serial dilution, linear range, and ICP-MS tune and internal standards, as applicable.

It is stated in Table 1, standard footnote No. 3, that significant issues identified for non- TDMS QC parameters may prompt a more in-depth review of those issues in other data packages to evaluate their effect on data usability, and that a 10% manual review independent of the TDMS data evaluation will also be performed that will assist in identifying potential QC issues. Once the first round of sampling is received, validated, and SWC can demonstrate that the TDMS provides acceptable results, EPA may consider discussing a reduction in the percentage of parameters that need to be done manually as noted in the cover letter.

The Sherwin-Williams Company
Environmental, Health & Regulatory Services
101 Prospect Avenue, N.W.
Cleveland, Ohio 44115-107N
Facsimile: (216) 566-2730

March 8, 2004

Mr. Emmet Keveney
U.S. Environmental Protection Agency
290 Broadway 19th Floor
New York, NY 10007-1866

RE: Data Validation for Gibbsboro RI/FS

Dear Mr. Keveney:

This letter is to follow up on the discussion at the meeting with U.S. Environmental Protection Agency (USEPA) on 15 January 2004 on data validation of analytical data generated for Gibbsboro RI/FS. In the meeting, Sherwin-Williams proposed to EPA and its representative to use the Technical Data Management Systems (TDMS) developed by Weston Solutions, Inc. (Weston®) to evaluate data collected during the RI/FS. The purpose of using TDMS is to establish a more efficient and powerful information infrastructure to support the storage, evaluation, and reporting of the results of RI/FS.

The following are responses to the questions you e-mailed to me on February 24, 2004, from EPA's Hazardous Waste Support Section (HWSS). Questions are in italics. Answers are in **bold**. Following the response to questions is additional information related to this subject.

(1) (i) Has Weston used the TDMS system for data validation for any other sites in EPA Region 2 that I could reference our Edison lab to?

The TDMS data validation tool has been used successfully on several sites by WESTON. Historically, this tool has been used extensively in Regions 1, 5, and 7. Within Region 2, WESTON has implemented this tool extensively on the Former Raritan Arsenal for the U.S. Corp of Engineers in New Jersey. All data collected for the Former Raritan Arsenal project from 1994 to 2000 were evaluated using the TDMS data validation tool. NJDEP accepted data qualifications generated by TDMS and approved No Further Action (NFA) for one Area of Concern (AOC) for this site. In Regions 1, 5, and 7 the use of the TDMS data validation tool has been accepted when a percentage of the data has also been subjected to manual data validation.

(ii) What has been their experience using it in general?

Experience using this tool has demonstrated that the TDMS program accurately evaluates data quality using both U.S. EPA's Functional Guidelines as well as Region 2's guidelines. The system can be easily configured to evaluate the data using either set of guidelines. This tool has repeatedly evaluated data for percent solids, hold times, surrogate recoveries, matrix spike/matrix spike duplicate recoveries, method blank contamination, equipment blank and trip blank contamination, and field duplicate comparisons in a manner consistent with manual validation. In order to ensure that the Gibbsboro project replicates WESTON's prior experience, 10% of the samples collected will undergo both automated and manual data validation. In addition, any U or R data flags assigned by the TDMS data validation tool will be inspected by a qualified chemist and approved prior to being loaded to the database. This approach will ensure that TDMS is applying qualifiers correctly while also allowing a comparison to the project-specific DQO criteria.

(iii) How long have they been using it?

WESTON has been using TDMS for well over 10 years on our various projects. The clients that have benefited from the use of the TDMS data validation tool includes U.S. EPA – Region 1 (Pittsfield project), U.S. Corp of Engineers, U.S. Air Force, U.S. Navy, Sherwin-Williams, and various confidential petroleum pipeline clients. Weston has also continued to use TDMS on its Former Raritan Arsenal project, which has been active since 1992. WESTON has used the TDMS data validation tool on all Sherwin-Williams projects since 1998.

(iv) Who developed it?

WESTON developed TDMS internally for use on U.S. Air Force and petroleum pipeline projects. The evaluation module was developed in 1993 and has been continually updated over time to remain viable with changes to the Microsoft Windows operating systems and Microsoft Access. The data validation tool is easily customized to implement Agency-specific data validation guidelines.

(v) Has it been used for CLP SOWs and EPA Data Validation SOPs?

Yes. EPA Region 2 data validation SOPs and CLP SOW quality control (QC) criteria are used by TDMS for applying data qualifiers. In addition, various quality control limits and sample quantitation limits outlined in the QAPP are incorporated in the electronic version of the Sampling and Analysis Plan (e~SAP) used by TDMS for data evaluation. In the TDMS data evaluation tool, codes are

set according to EPA Region 2 data validation SOPs. This tool allows the flexibility to use alternate validation guidelines such as the National Functional Guidelines and State Agency-specified criteria to ensure that TDMS-generated data qualifiers are consistent with Agency-specified procedures.

(2) (i) What are the SOPs for the electronic validation system?

Although formal SOPs have not been written for the automated validation process of TDMS, a user manual has been prepared that describes how to successfully use the tool. Additional procedures and documentation are typically presented in the site-specific data management plans. Prior to starting any TDMS project, an electronic SAP is developed based on information provided in the QAPP. The e~SAP includes: Method, Caption, CAS Number, Matrix, Detection Limit, Compound Type (i.e., surrogate), Reporting Units, QC Spike High, QC Spike Low, QC Relative Percent Difference, Blank Spike High, Blank Spike Low, and Blank Relative Percent Difference. When an EDD is validated, information in this table is used as the standard validation criteria. At the beginning of every year, WESTON provides the analytical laboratory with a copy of this table to be updated. When an electronic data package (aka electronic data deliverable – EDD) is received from the lab, the following tasks are completed to ensure data quality and usability:

1. **The EDD is electronically checked for completeness. The completeness check includes: verification of the EDD format, valid values, dates, captions, methods, and CAS Numbers found in the electronic SAP. After the EDD has been run through the checker an EDD Validation Log (Exception Report) is generated and printed. All errors identified on this report are manually checked.**
2. **Discrepancies are noted and the EDD is returned to the lab for modification, if necessary.**
3. **This process is repeated until the EDD has met all required criteria.**
4. **The EDD is loaded to the TDMS Master database and automatic validation is performed.**
5. **The system generates 5 reports (see Question 7 for a list of reports). The Evaluation Flag Report is reviewed. This report includes the following information: Lab ID, Evaluation Phase, Dilution Code, Matrix, Method, Caption, Lab Flag, Lab Result, Evaluation Flag, and Evaluation Result.**
6. **These reports are given to a data validator for manual review.**

7. **Based on this review, any changes made to the result flag due to professional judgment or interpretation are manually made to the hard copy data package and the TDMS system generated reports. Justification of changes is noted in the data validator's narrative.**
8. **The data management team manually adjusts the flag code in the TDMS database to reflect the codes assigned during manual data validation.**
9. **After the changes have been made, the Flag Report is generated and reviewed for accuracy and completeness of all changes made.**

(ii) What are the inputs to the program and are they subject to transcribing and other input errors?

Immediately following sample collection, Chain-of-Custody (COC) information is loaded to TDMS. This information can be either manually entered or electronically uploaded from FieldFast. For the Gibbsboro project, the COC data will be uploaded from FieldFast eliminating the possibility of transcription errors. The data entered into TDMS will be identical to that data received by the laboratory. Following sample analysis, the laboratory will generate an EDD for each Sample Deliverable Group (SDG) by capturing various required information automatically from the lab's LIM system. Once receiving the EDD from the lab, WESTON will use one of the TDMS modules to check its validity. Information such as field samples IDs, lab samples IDs, collection dates, lab received dates, sample preparation dates, analysis dates, analytical methods, CAS#, analyte captions, results, units, etc., will be checked against electronic COC and e~SAP information. If any transcription errors occurred at the laboratory during sample log-in, these errors will be identified during this QA check. The data validation process does not involve the loading of manual data until the data has been validated and the system offers the opportunity to override the system-generated data flags (i.e., U, R, J). If a data validator exercises professional judgement then the system-generated flags will be overridden via manual data entry.

(iii) How does the system deal with those kind of errors?

Given the process described above, transcription errors are virtually eliminated. The use of FieldFast during sample collection ensures that typographical error will not occur between sample collection and data reporting. TDMS generates exception reports to alert the project team about errors/discrepancies that might exist between the COC information collected in the field versus what is reported via EDD. Additionally, variations in the analytical methodology are captured via comparisons of the EDD and the e~SAP. The only time that manual data entry occurs is when data flags are added as a result of manual data validation. WESTON will inform the analytical laboratory of any necessary EDD revisions.

Revised EDDs will be subjected to the same process again until the EDD is determined acceptable

(3) Will the lab or Weston run the electronic validation?

The lab will be given a copy of an EDD checker program to ensure that the EDD is formatted properly and is using the appropriate reporting nomenclature (i.e., method #, units, chemical name, etc.). However, WESTON will perform the actual validation.

(4) What will you not be able to perform electronically and thus need to perform manually to validate?

Table 1 summarizes the data validation tasks performed by TDMS vs. EPA Region 2 data validation requirements. In addition to the automated data validation performed by TDMS, 10% of the SDGs will undergo 100% manual data validation independently of TDMS following EPA Region 2 data validation SOPs. Additionally, a qualified data validator will review the data validation reports generated by the TDMS validation tool and manually inspect the hard copy data package where TDMS assigns any U or R flags to ensure that the system is accurately assessing data quality. If QC issues are identified during the manual validation that cannot be assessed by TDMS, Sherwin-Williams will evaluate other options (such as additional manual validation to supplement the TDMS automated validation checks).

(5) What tasks/criteria will the electronic system perform automatically?

Table 1 describes the quality assurance checks that TDMS will perform. They include:

- **Hold Time Evaluation - Checks whether holding times meet, slightly exceed, or grossly exceed SAP criteria.**
- **Surrogate Evaluation - Surrogate recoveries are compared to the ranges specified in the SAP.**
- **Method Blank Contamination - Determines whether the source of the field sample analyte detection is a result of laboratory processing.**
- **Field Blank Evaluation - Determines whether the source of the field sample analyte detection is a result of field processing.**
- **Blank Spike & Duplicate Evaluation - Checks whether the blank spike sample spiked compound recoveries and relative percent differences meet SAP criteria.**

- **Matrix Spike Evaluation I - Spiked field sample recoveries and relative percent differences are compared to the ranges specified in the SAP.**
- **MS/MSD Unspiked Compounds Evaluation - Determines the precision (reproducibility) of unspiked compounds present in the field sample, its matrix spike sample and its matrix spike duplicate.**
- **Laboratory Control Sample Evaluation - LCS and LCSD spiked compound recoveries and relative percent differences are compared to the range specified in the SAP.**
- **Laboratory Duplicates Evaluation - Checks whether the precision between a field sample and its laboratory duplicate meet USEPA CLP National Functional Guidelines for Data Review.**
- **Field Duplicates Evaluation - Checks whether the precision between a field sample and its field duplicate meet USEPA CLP National Functional Guidelines for Data Review.**
- **Percent Solid Evaluation - Checks whether the field sample percent solids meet SAP criteria.**

(6) (i) Will the automated system perform the following QC checks or will they need to be done manually:

Holding time; GC/MS Instrument performance check; Initial and continuing calibrations; Internal standards; System monitoring compounds/surrogates; Matrix spikes; Laboratory and field blanks; GC system performance; Sample cleanup; Analytical sequence; CRDL standards; Laboratory control samples; Duplicate sample analysis; GFAA quality control; Interference check sample; ICP serial dilution; Sample result verification; Percent moisture; and Field Blanks.

The previous two responses and Table 1 provide a description of those QA/QC checks that TDMS can perform. Generally, any checks that can be performed without interpretation will be performed by TDMS.

(ii) Will the automated system provide QC reports for all the QC checks listed above?

Yes, TDMS will provide reports for the QC checks it completes. TDMS generates 3 different data evaluation reports to explain what qualifiers are applied, why they were applied, and what the final data qualifier is for a particular analyte. These reports include the Evaluation Log Report, Evaluation Flag Detail Report, and Evaluation Flag Report. Two additional reports (Field Blank Report and Chain of Custody Summary) are not related to data evaluation.

(7) Will the automated system provide the qualified data spreadsheet (Lotus, Excel, csv) for each sample with data validation qualifiers?

There are 5 reports that the system generates (refer to Attachment A for examples of each report); however, neither the Field Blank Report nor the Chain of Custody Summary is used for validation/evaluation purposes. All of the reports can be exported to Excel. The five reports that the system automatically generates are:

- **Evaluation Log Report - Lists the SAP exceptions/errors as previously reported in Load to Master phase.**
- **Evaluation Flag Detail Report - Lists all qualified results by sample and QA/QC criteria outlier. If a positive result is qualified due to a high surrogate recovery and high matrix spike recovery, the analyte appears twice on this report.**
- **Field Blank Report - Lists associated Field Blank/Sample combinations.**
- **Evaluated Flag Report - Lists qualified analytes by method regardless of number of QA/QC criteria outliers.**
- **Chain of Custody Summary - Modified format of the field COC, as entered into the Sampling Tracking module (Socrates) of TDMS.**

In addition, the end user can query the database to create customized reports summarizing the final data validation qualifiers and export this information to Excel.

(8) (i) Has the automated system been validated to ensure that it does not experience common mistakes, i.e., the data are validated correctly according to the QA/QC requirements?

As described in the response for Question #1(ii), WESTON has successfully demonstrated on other projects that the automated data validation tool is consistent with manual data validation results. Performing full manual data validation on 10% of the data generated on the Gibbsboro project will ensure that similar results are achieved using this tool. Since the data evaluation codes used by TDMS are based on EPA Region 2 data validation SOPs, WESTON does not anticipate significant discrepancies. However, WESTON's standard procedure calls for manual verification of data qualifiers applied by TDMS for every SDG. This is achieved by using the 3 reports generated by TDMS during EDD evaluation and the lab report. An experienced data validator will examine the QC summary forms found in the lab report along with the TDMS generated reports to confirm or override what TDMS applied. This practice also allows the data validator to exercise professional judgment and to decide which analysis (original, dilution, or re-analysis) should be used for reporting purposes.

(ii) Also, what Beta/external/internal testing of this system has been performed?

WESTON has spent a considerable amount of time going through the code for each of the validation phases with numerous data validators to guarantee that the system is performing according to QA/QC requirements. In addition, third party consultants performing site investigations on Sherwin-Williams behalf have reviewed and approved of the system-assigned data flags on numerous projects within Regions 2, 4, and 5. In addition, the extensive use of TDMS over the last 10 years ensures that the software has been thoroughly field tested.

(9) How does the system ensure that, once the QA/QC criteria has been applied, it cannot be changed (accidentally or otherwise)?

Once loaded to the central database, the validated data can no longer be modified via the TDMS system without administrative access that only a select few WESTON personal located in the Vernon Hills, Illinois office have. Even with administrative access, there is a multi-step process required to allow data to be changed that prevents accidental data modifications. The most common access provided is to allow users to query data from the database rather than modify its contents.

ADDITIONAL INFORMATION

TDMS is a comprehensive system for managing the data collection, review, analysis, and reporting life cycle for technical data. This program handles large quantities of data, provides for consistent data collection and input, performs data evaluation based on U.S. EPA Region II data validation guidelines, and integrates geological, analytical, and locational data.

Given the fact that a large amount of samples will be collected for various matrices, traditional manual data validation following U.S. EPA Region II guidelines is very time consuming. The TDMS data validation tool will dramatically increase the efficiency of the Gibbsboro RI/FS and ensure that data can move swiftly from sample collection through reporting. Although TDMS data evaluation is limited to non-instrument-related QC analyses, TDMS evaluates data for holding times, precision, and accuracy of sample analyses. It also checks soil/sediment samples for solid content, one of the parameters to be evaluated per U.S. EPA Region II data validation guidelines. With the exception of geotechnical analyses (e.g., grain size), all samples will be subjected to TDMS evaluation.

For QA purposes, ten percent (10%) of samples collected will also be subjected to traditional manual data validation using various U.S. EPA Region II data validation

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SOPs. Selections of laboratory reports for manual data validation may be on a bias-basis if it is necessary to evaluate data from critical or sensitive sample locations. However, samples subjected to manual validation, in general, will be selected in such a way that they are from all sites of investigation and are representative of all sample matrices. Field sampling schedules and Chain-of-Custody forms will be used to assist in selecting laboratory reports for this purpose. All TDMS data validation outputs will be reviewed by experienced data validators for correctness using paper copy of laboratory reports. If TDMS recommends assigning a U or R flag as a result of validation, the hard copy data package will be manually inspected by a human data validator to ensure data quality is being adequately represented.

A copy of the table comparing USEPA Region II data validation and TDMS data evaluation is attached. For evaluation items not performed by TDMS, the potential impact on data qualification is also provided in the comparison.

In addition, per our January 15, 2004 meeting, Sherwin-Williams proposes that an alternate schedule be adopted from sample collection through validated data USEPA submission. Currently, that schedule is 45 calendar days. Sherwin-Williams proposes a schedule of 45 work days: 20 work days for laboratory analysis and 25 work days for data validation.

If you have any questions or comments, please do not hesitate to contact me at 216-566-1794 or via e-mail at mlcapichioni@sherwin.com.

Sincerely,

Mary Lou Capichioni

Mary Lou Capichioni
Director, Remediation Services

Attachment

cc: Terri Bowers, Gradient
Steve Clough, Weston
Hank Martin, ELM

Table 1
Comparison of EPA Region II validation procedures to TDMS evaluation.

EPA Region II validation criteria[1]	TDMS validation criteria[2,3]	Are there any Region II validation actions not performed by TDMS for this criteria?	Are there any TDMS validation actions not performed by Region II for this criteria?	Data Useability Implications or Impact of differences in validation procedure[3]
Organics *VOCs/SVOCS*				
GC/MS				
Percent Solids and sample condition at lab receipt.	Percent Solids and sample condition at lab receipt.	If a sample is not iced/preserved properly qualify detections and nondetections with a J. If there are air bubbles in VOA samples qualify detections with a J and reject R nondetections.	No	(J)_qualified data are useable as estimated values. Data reviewer will inspect sample receipt documentation for potential usability issues.
Holding Time	Holding Time	No	No	None
Surrogate	Surrogate	No	No	None
Matrix Spike/Matrix Spike Duplicate (MS/D)	MS/D	EPA calls for use of professional judgment without specific guidelines for actions.	TDMS sets specific guidelines for action: If the analyte recovery <10%, then reject R nondetections. If the analyte recovery is out of criteria then qualify its detection or nondetection with a J.	TDMS criteria are more stringent than EPA Region II criteria.
None	Blank Spike/Blank Spike Dup (BS/D)	No	Qualifications are applied to all the associated samples and only the spiked compounds are qualified. If the analyte recovery <10%, then reject nondetections. If the analyte recovery is out of criteria then qualify detections and nondetections with a J.	Not an issue because blank spike will not be performed under CLP SOW. TDMS is more stringent than Region II.
Method Blank	Method Blank	No	No	None
Equipment and Trip Blanks	Equipment and Trip Blanks	No	No	None

[1] EPA Region II SOP No. HW-6, Rev. 12, March 2001, *CLP Organics Data Review and Preliminary Review* and SOP No. HW-2, Rev. 11, January 1992, *Evaluation of Metals Data for the CLP*
[2] Weston Solutions, Inc. Technical Data Management System (TDMS), *ARISTOTLE Module*
[3] Weston will perform a thorough review of laboratory Case Narratives for all data packages to determine if there are data usability issues associated with both TDMS ***and*** non-TDMS QC parameters. Significant issues identified for non-TDMS QC parameters may prompt a more in-depth review of those issues in other data packages to evaluate their effect on data usability. Moreover, a 10% manual review independent of the TDMS-data evaluation will also be performed that will assist in identifying potential pervasive QC issues.

Table 1
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EPA Region II validation criteria[1]	TDMS validation criteria[2,3]	Are there any Region II validation actions not performed by TDMS for this criteria?	Are there any TDMS validation actions not performed by Region II for this criteria?	Data Useability Implications or Impact of differences in validation procedure[3]
Storage Blank	None	Evaluation criteria are the same as those for Method Blank	No	TDMS does not evaluate Storage Blanks. However, the most critical contamination information is derived from Method, Equipment, and Trip Blanks. Potential false positives may be reported.
GC/MS Tune	None	If analysis is outside 12 hour of tune then reject R all data. If MS is out of tune then reject R all data.	No	TDMS does not assess this parameter, therefore, data will not be qualified[3].
Target compound List	None	Check retention time and spectrum of the detection and examine the chromatogram for the correct identification.	No	TDMS does not assess this parameter, therefore, data will not be qualified[3].
Tentatively Identified Compounds	None	Check correctness of the identification.	No	TDMS does not evaluate TICs. False positives and improper identification may occur.
Compound Quantitation and/or Method Detection Limits	Compound Quantitation and/or Method Detection Limits	Checks for correct quantitation based on sample preparation and dilution if performed. TDMS checks sample dilution factor and compares sample quantitation or method detection limits to those established in e-SAP. TDMS warns user in exception reports if the deviation exceeds 10%	No No	TDMS partially evaluates compound quantitation limits.
Reconstructed Ion Chromatograms	None	Check for a stable baseline.	No	TDMS does not evaluate this parameter.

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Table 1
Comparison of EPA Region II validation procedures to TDMS evaluation.

EPA Region II validation criteria[1]	TDMS validation criteria[2,3]	Are there any Region II validation actions not performed by TDMS for this criteria?	Are there any TDMS validation actions not performed by Region II for this criteria?	Data Useability Implications or Impact of differences in validation procedure[3]
Calibrations (initial and continuing)	None	If RSD >30%, qualify detections and nondetections with a J. If %D >25%, qualify detections and nondetections with a J. If RSD or %D >90%, qualify detections with a J and reject nondetections. If RRF <0.05, qualify detections with a J and reject nondetections. *(RSD* (relative standard deviation) indicates the linearity of the initial calibration curve. *%D* (% difference) indicates whether the initial calibration is still valid. *RRF* (relative response factor) indicates the sensitivity of the instrument to a specific analyte.)	No	TDMS does not evaluate % RSDs, % Ds, and RRF[3] associated with initial and continuing calibrations. Therefore, data will not be qualified[3].
Internal Standard (IS)	None	If an IS response<50% of the reference response, then qualify all associated data with a J. If an IS response>100% of the reference response, then qualify all associated detections with a J. If an IS response<25% of the reference response, then reject nondetections and qualify detections with a J.	No	TDMS does not evaluate IS responses, therefore, data will not be qualified[3].

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EPA Region II validation criteria[1]	TDMS validation criteria[2,3]	Are there any Region II validation actions not performed by TDMS for this criteria?	Are there any TDMS validation actions not performed by Region II for this criteria?	Data Useability Implications or Impact of differences in validation procedure[3]
Field Duplicate	Field Duplicate	EPA calls for use of professional judgment without specific guidelines for actions.	TDMS sets specific guidelines for action: If water RPD >50%, qualify detections with a J. If soil RPD >100%, qualify detections with a J.	None. TDMS is more stringent than Region II with regard to field duplicate precision. Data qualifiers will be applied for imprecision.
Pesticide/PCBs				
Percent Solids and sample condition at lab receipt.	Percent Solids and sample condition at lab receipt.	If a sample is not iced/preserved properly, qualify detections and nondetections with a J.	No	TDMS does not evaluate this parameter, however, the data reviewer will evaluate the impact of improper preservation on data usability. Data reviewer will inspect sample receipt documentation for potential usability issues.
Holding Time	Holding Time	No	No	None
Surrogate	Surrogate	No	No	None
MS/D	MS/D	EPA calls for use of professional judgment without specific guidelines for actions.	TDMS sets specific guidelines for action: If the analyte recovery <10%, then reject R nondetections. If the analyte recovery is out of criteria then qualify detections and nondetections with a J.	TDMS is more stringent than Region II with regard to application of qualifiers due to MS/D exceedances.

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EPA Region II validation criteria[1]	TDMS validation criteria[2,3]	Are there any Region II validation actions not performed by TDMS for this criteria?	Are there any TDMS validation actions not performed by Region II for this criteria?	Data Useability Implications or Impact of differences in validation procedure[3]
None	BS/D	No	Qualifications are applied to all the associated samples and only the spiked compounds are qualified. If the analyte recovery <10%, then reject nondetections. If the analyte recovery is out of criteria then qualify detections and nondetections with a J.	Not an issue because BS/D analyses will not be performed under CLP SOW
Method Blank	Method Blank	No	No	None.
Equipment and Trip Blanks	Equipment and Trip Blanks	No	No	None
Instrument Blank	None	If a target compound concentration is > 0.5 times CRQL, the criteria used for method blank contamination are applied for qualifying results.	No	TDMS does not assess this parameter, therefore, data will not be qualified[3]. Potential false positives may be reported.
Target compound List	None	Check retention time and examine the chromatogram for the correct identification.	No	TDMS does not evaluate Target Compound quantitation[3].
Quantitation And/or Method Detection Limits	Compound Quantitation and/or Method Detection Limits	Checks for correct quantitation based on sample preparation and dilution if performed. TDMS checks sample dilution factor and compares sample quantitation or method detection limits to those established in e-SAP. TDMS warns user in exception reports if the deviation exceeds 10%	No No	TDMS does not evaluate quantitation/detection limits[3].

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Table 1
Comparison of EPA Region II validation procedures to TDMS evaluation.

EPA Region II validation criteria[1]	TDMS validation criteria[2,3]	Are there any Region II validation actions not performed by TDMS for this criteria?	Are there any TDMS validation actions not performed by Region II for this criteria?	Data Useability Implications or Impact of differences in validation procedure[3]
Standard Chromatograms	None	Check for a stable baseline.	No	TDMS does not evaluate Standard Chromatograms[3].
Calibration and GC Performance	None	Peak resolution, degradations of DDT and endrin, initial calibration, and continuing calibration are to be checked.	No	TDMS does not evaluate Calibration and GC performance[3].
Analytical Sequence Check	None	No action specified other than using professional judgment.	No	TDMS does not evaluate this parameter.[3]
Cleanup efficiency	None	Qualify only the analytes which failed the recovery criteria.	No	TDMS does not evaluate this parameter.[3]
Identification	None	Retention time check, quantitation precision check, and visual chromatogram check.	No	TDMS does not evaluate this parameter.[3]
Field Duplicate	Field Duplicate	EPA calls for use of professional judgment without specific guidelines for actions.	TDMS sets specific guidelines for action: If water RPD >50%, qualify detections with a J. If soil RPD >100%, qualify detections with a J.	None. TDMS is more stringent than Region II.

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EPA Region II validation criteria[1]	TDMS validation criteria[2]	Are there any Region II validation actions not performed by TDMS for this criteria?	Are there any TDMS validation actions not performed by Region II for this criteria?	Data Useability Implications or Impact of differences in validation procedure.
Inorganics				
Holding Time	Holding Time	No	No	None
pH Check	None	If >2 (metals) or <12(cyanide), qualify all data with a J.	No	TDMS does not assess this parameter, therefore, data will not be qualified.[3]
Calibration	None	If correlation < 0.995, qualify all with a J. If recovery is outside warning limits, qualify all data with a J. If recovery is outside out of control limits, reject all data.	No	TDMS does not evaluate this parameter.[3]
Method Blank	Method Blank	No action is specified if blank contamination≤CRDL (contract required detection limit).	For blank contamination≤CRDL: If a sample detection<10X blank value, then qualify as nondetected (U flagged).	TDMS is more stringent with regard to qualification due to blank contamination.
ICP Interference	None	If 120%<recovery<150%, qualify detections with a J. If 50%<recovery<80%, qualify all data with a J. If recovery>150%, reject detections. If recovery<50%, reject all data.	No	TDMS does not assess this parameter, therefore, data will not be qualified.[3]
MS/D	MS/D	No	No	None
Lab Duplicate	Lab Duplicate	No	No	None
Field Duplicate	Field Duplicate	No	No	None

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Table 1
Comparison of EPA Region II validation procedures to TDMS evaluation.

EPA Region II validation criteria[1]	TDMS validation criteria[2]	Are there any Region II validation actions not performed by TDMS for this criteria?	Are there any TDMS validation actions not performed by Region II for this criteria?	Data Useability Implications or Impact of differences in validation procedure.
LCS	LCS	No	No	None
Serial Dilution	None	If %D>10%, then qualify detections with a J. If %D>100%, then reject detections.	No	TDMS does not assess this parameter, therefore, data will not be qualified.[3]
MSA (method of standard addition) AA only.	None	corr. coef.<.995, qualify all data with a J. corr.coef.<.990, reject all data.	No	TDMS does not assess this parameter, therefore, data will not be qualified.[3]
Equipment Blanks	Equipment Blanks	No action is specified if blank contamination≤CRDL (contract required detection limit).	For blank contamination≤CRDL: If a sample detection<5X blank value, then qualify as nondetected (U flagged).	TDMS is more stringent than Region II with regard to qualification due to equipment blank contamination.
Linear Range	None	If the sample wasn't diluted to bring it into linear range then qualify all data with a J.	No	TDMS does not assess this parameter, therefore, data will not be qualified.[3]
Percent Solids	Percent Solids	No	No	None.

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M, 9/30/96, DSM
Reviewed.

Evaluation Flag Detail Report
Delivery Group ID: 9605L021
Chain of Custody ID: COC0000022 SAP ID: 0011

19:34:29
09/26/1996

Edits needed — Edits were made — RTLC ⇒ LC

Eval. Phase Lab ID	Dil. Code	Matrix	Method	Caption/Analyte	Lab Flag Calc Flag	Lab Result Eval Result	Eval Flag	Param ID Sub ID
-001 EVAL0012	00	S	6/7000P	BERYLLIUM, TOTAL	U	0.11	U	4354 T
-001 EVAL0013	00	S	6/7000P	BERYLLIUM, TOTAL	U	.11	U	4354 T
-001 EVAL0013	00	S	6/7000P	CHROMIUM, TOTAL	U	.36	U	4372 T
-001 EVAL0014	00	S	6/7000P	CHROMIUM, TOTAL	U	0.36	U	4372 T
-001 EVAL0013	00	S	6/7000P	COPPER, TOTAL	J-	.51	U	4382 T
-001 EVAL0014	00	S	6/7000P	COPPER, TOTAL	U	0.51	U	4382 T
-001 EVAL0014	00	S	6/7000P	LEAD, TOTAL	J	0.49	J	4282 T
-001 EVAL0013	00	S	6/7000P	ZINC, TOTAL	J-	.28	R	4393 T
-002 EVAL0012	00	S	6/7000P	BERYLLIUM, TOTAL	R (Correct? Yes)	0.16	U	4354 T
-002 EVAL0013	00	S	6/7000P	BERYLLIUM, TOTAL	U	.16	U	4354 T
-002 EVAL0014	00	S	6/7000P	CHROMIUM, TOTAL	U	3.1	J	4372 T
-002 EVAL0014	00	S	6/7000P	COPPER, TOTAL	J-	4.5	J	4382 T
-002 EVAL0013	00	S	6/7000P	LEAD, TOTAL	J	5.9	J	4282 T
-003 EVAL0012	00	S	6/7000P	ZINC, TOTAL	J-	4.2	R	4393 T
-003 EVAL0013	00	S	6/7000P	BERYLLIUM, TOTAL	R	0.14	U	4354 T
-003 EVAL0014	00	S	6/7000P	BERYLLIUM, TOTAL	U	.14	U	4354 T
-003 EVAL0014	00	S	6/7000P	CHROMIUM, TOTAL	U	2.9	J	4372 T
-003 EVAL0013	00	S	6/7000P	COPPER, TOTAL	J-	4.1	J	4382 T
-003 EVAL0014	00	S	6/7000P	LEAD, TOTAL	J	5.1	J	4282 T
-003 EVAL0013	00	S	6/7000P	ZINC, TOTAL	J-	4.8	R	4393 T
					R			

More than 1x MS/D (metals) in prep batch 96L1050.
Select 9604L009 as appropriate MS/D + LD because it's also Area 2.

All 9604L009 MS/D met criteria.

Evaluation Log Report
Delivery Group ID: 9605L021
Chain of Custody ID: COC0000022 SAP ID: 0011

19:34:26
09/26/1996

Delivery Group: 9605L021	**C-Of-C Item:**002	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -002		[1]	EVAL0012
Field Sample ID: SS-0219B		[2]	0
Method: 6/7000P		[3]	3300
Matrix: S **Sub ID:** T		[4]	
Caption:			
Error: Flags set during Method Blank Evaluation Process			

Delivery Group: 9605L021	**C-Of-C Item:**001	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -001		[1]	EVAL0012
Field Sample ID: SS-0219A		[2]	0
Method: 6/7000P		[3]	3300
Matrix: S **Sub ID:** T		[4]	
Caption:			
Error: Flags set during Method Blank Evaluation Process			

Delivery Group: 9605L021	**C-Of-C Item:**003	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -003		[1]	EVAL0012
Field Sample ID: SS-0219C		[2]	0
Method: 6/7000P		[3]	3300
Matrix: S **Sub ID:** T		[4]	
Caption:			
Error: Flags set during Method Blank Evaluation Process			

Delivery Group: 9605L021	**C-Of-C Item:**	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -002		[1]	EVAL0013
Field Sample ID: SS-0219B		[2]	0
Method: 6/7000P		[3]	3400
Matrix: S **Sub ID:**		[4]	
Caption:			
Error: Flags set during Field Blank Evaluation Process			

Delivery Group: 9605L021	**C-Of-C Item:**	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -001		[1]	EVAL0013
Field Sample ID: SS-0219A		[2]	0
Method: 6/7000P		[3]	3400
Matrix: S **Sub ID:**		[4]	
Caption:			
Error: Flags set during Field Blank Evaluation Process			

Delivery Group: 9605L021	**C-Of-C Item:**	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -003		[1]	EVAL0013
Field Sample ID: SS-0219C		[2]	0
Method: 6/7000P		[3]	3400
Matrix: S **Sub ID:**		[4]	
Caption:			
Error: Flags set during Field Blank Evaluation Process			

Delivery Group: 9605L021	**C-Of-C Item:**	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -001		[1]	EVAL0013
Field Sample ID: SS-0219A		[2]	0
Method: E160.3		[3]	3405
Matrix: S **Sub ID:**		[4]	
Caption:			
Error: Field Blank Data Not Found.			

Delivery Group: 9605L021	**C-Of-C Item:**	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -002		[1]	EVAL0013
Field Sample ID: SS-0219B		[2]	0
Method: E160.3		[3]	3405
Matrix: S **Sub ID:**		[4]	
Caption:			
Error: Field Blank Data Not Found.			

Delivery Group: 9605L021	**C-Of-C Item:**	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -003		[1]	EVAL0013
Field Sample ID: SS-0219C		[2]	0
Method: E160.3		[3]	3405
Matrix: S **Sub ID:**		[4]	
Caption:			
Error: Field Blank Data Not Found.			

Evaluation Log Report
Delivery Group ID: 9605L021
Chain of Custody ID: COC0000022 SAP ID: 0011

19:34:26
09/26/1996

Delivery Group: 9605L021	**C-Of-C Item:**	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -002		[1]	EVAL0013
Field Sample ID: SS-0219B		[2]	0
Method: SW9045		[3]	3405
Matrix: S **Sub ID:**		[4]	
Caption:			
Error: Field Blank Data Not Found.			
Delivery Group: 9605L021	**C-Of-C Item:**	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -003		[1]	EVAL0013
Field Sample ID: SS-0219C		[2]	0
Method: SW9045		[3]	3405
Matrix: S **Sub ID:**		[4]	
Caption:			
Error: Field Blank Data Not Found.			
Delivery Group: 9605L021	**C-Of-C Item:**	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -001		[1]	EVAL0013
Field Sample ID: SS-0219A		[2]	0
Method: SW9045		[3]	3405
Matrix: S **Sub ID:**		[4]	
Caption:			
Error: Field Blank Data Not Found.			
Delivery Group: 9605L021	**C-Of-C Item:**002	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -002		[1]	EVAL0014
Field Sample ID: SS-0219B		[2]	0
Method: 6/7000P		[3]	3600
Matrix: S **Sub ID:** T		[4]	
Caption:			
Error: Flags set during Matrix Spike Evaluation Process			
Delivery Group: 9605L021	**C-Of-C Item:**001	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -001		[1]	EVAL0014
Field Sample ID: SS-0219A		[2]	0
Method: 6/7000P		[3]	3600
Matrix: S **Sub ID:** T		[4]	
Caption:			
Error: Flags set during Matrix Spike Evaluation Process			
Delivery Group: 9605L021	**C-Of-C Item:**003	**TDMS Error Detail Messages**	Warning
Lab Sample ID: -003		[1]	EVAL0014
Field Sample ID: SS-0219C		[2]	0
Method: 6/7000P		[3]	3600
Matrix: S **Sub ID:** T		[4]	
Caption:			
Error: Flags set during Matrix Spike Evaluation Process			

Evaluated Flag Report
Delivery Group ID: 9605L021
Chain of Custody ID: COC0000022 SAP ID: 0011

11:17:57
09/30/1996

Lab ID	Dil. Code	Matrix	Method	Caption/Analyte	Lab Result	Flag	Eval Result	Flag	Param ID	Sub
-001	00	S	6/7000P	ZINC, TOTAL	0.28			R	4393	T
-001	00	S	6/7000P	COPPER, TOTAL	0.51			U	4382	T
-001	00	S	6/7000P	CHROMIUM, TOTAL	0.36			U	4372	T
-001	00	S	6/7000P	BERYLLIUM, TOTAL	0.11			U	4354	T
-002	00	S	6/7000P	ZINC, TOTAL	4.2			R	4393	T
-002	00	S	6/7000P	BERYLLIUM, TOTAL	0.16			U	4354	T
-003	00	S	6/7000P	ZINC, TOTAL	4.8			R	4393	T
-003	00	S	6/7000P	BERYLLIUM, TOTAL	0.14			U	4354	T

The Sherwin-Williams Company
Environmental, Health & Regulatory Services
101 Prospect Avenue, N.W.
Cleveland, Ohio 44115-107N
Facsimile: (216) 566-2730

30 March 2004

Mr. Emmet Keveney
U.S. Environmental Protection Agency
290 Broadway 19th Floor
New York, NY 10007-1866

RE: Metals and Cyanide Analyses
Gibbsboro, N.J. RI/FS

20076.022.061

Dear Mr. Keveney:

The Work Plan prepared for the upcoming Gibbsboro RI/FS proposed using CLP Statement of Work (SOW) ILMO5.2 for metal analysis. For a variety of reasons stated below, we are proposing to utilize an alternative method, SOW ILMO4.1.

A. There is substantially little difference between ILMO5.2 and ILMO4.1. The attached table demonstrates the similarities of the two methods. We do not believe that the change of methods will have any impact on the quality and the usability of the data. One advantage to using ISM04.1 is that in several cases it produces lower reporting limits.

B. Our contracted laboratory, Severn Trent Laboratories (STL), one of the largest laboratories in the nation and one of the more experienced in using ILMO5.2, is concerned that using ILMO5.2 will result in capacity issues and may impact the project schedule. Capacity would be greatly increased by using ILMO4.1. Their concern is that the software for ILMO5.2 is more involved and would significantly limit the number of samples the laboratory could process. Approving this change of SOW would allow STL to meet the rigorous schedule demands of the project.

C. One of the primary reasons for proposing ILMO5.2 was that this method provides guidelines/quality control for analyzing samples using the newest ICP-MS technology. However, we are not using this technology because the conventional trace ICP used by STL and a majority of the other commercial laboratories is still the prevalent instrument of choice for metal analysis and is allowed by ILMO5.2.

D. STL has been providing inorganic analysis for the Gibbsboro site for more than one year using ILMO4.1 under the Removal Action Branch-led work. It has been our team's experience that if a project is started with a particular SOW it has been recommended by various regulatory agencies that the laboratory continue using the initial SOW through the completion of the project even if an updated or new SOW is published.

In summary, we are requesting approval to utilize SOW ILMO4.1 versus ILMO5.2 for the upcoming RI field sampling program. If you have any questions or comments, please do not hesitate to contact me at 216-566-1794 or via e-mail at mlcapichioni@sherwin.com.

Sincerely,

Mary Lou Capichioni

Mary Lou Capichioni
Director, Remediation Services

Attachment

cc: Terri Bowers, Gradient
Sally Jones, Weston
Hank Martin, ELM

Comparison of Methods
Gibbsboro RI/FS

	Matrix	ILM05.2	ILM04.1
Preparation	Water	200.7	Same
	Soils	**200.7 (1g-200ml)**	**Same**
		SW846 (3050B) (1g-100ml) **(optional)**	N/A
CRDL/CRQL	Water(ug/l)	**CRQL**: As=15, Pb=10, Se=35, Tl=25, Zn=60 **Other analytes: same as ILM04.1**	**CRDL**: As=10, Pb=3, Se=5, Tl=10, Zn=20
	Soil (mg/kg)	As=3, Pb=2, Se=7, Tl=5, Tl=5, Zn=12 Other analytes: same as ILM04.1	As=2, Pb=0.6, Se=1, Tl=2, Zn=4
CRI (CRDL/CRQL) Check Standard		**Conc.**: Same as CRQL **Control limits**: 70-130% except Sb, Pb &Tl (50-150%)	**Conc.**: 2x CRDL **Control limits**: Not defined
MDL/IDL		**MDL**- 7 spiked replicates after digestion **Frequency**: Annually **Requirement**: MDL<1/2 CRQL	**IDL**- 7 spiked replicates without digestion **Frequency**: Quarterly **Requirement**: IDL < CRDL
IECs		Quarterly	Annually
Linear Range		Quarterly	Quarterly
Matrix Spike Level	Water (ug/l)	Se =50 Other analytes: same as ILM04.1	Se=10
	Soil (mg/kg)	Se=10 Other analytes: same as ILM04.1	Se=2
Hg Calibration		1.**Coefficient** >=0.995 **same as ILM04.1** 2.**Results** for each standard: Within 5% True Value	No 5% true value requirement
Hg CRI/CRA		Analyze CRI before analyze analytical sample, then once every 20 sample and at the end **Control limits**: 70-130%	Analyze CRI before analyze analytical sample. **NOT** required to analyze once every 20 sample and at the end. **Control limits**: Not defined

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30 March 2004

Mr. Emmet Keveney
U.S. Environmental Protection Agency
290 Broadway 19th Floor
New York, NY 10007-1866

20076.022.061

RE: Proposed MEDD Submittals

Dear Mr. Keveney:

The Sherwin-Williams Company has completed its review of the multimedia electronic data deliverable (MEDD) format requested by the United States Environmental Protection Agency (US EPA). Upon review of the MEDD format, we understand that this format is designed to facilitate loading of analytical data to an environmental data management system. Weston Solutions, Inc.® has extensive experience working with this MEDD format and the EQuIS data management system under their Remedial Action Contract with US EPA, Region 5. Based on their experience with both EQuIS and TDMS (the data management system currently in use on the Gibbsboro project), Sherwin-Williams proposes to submit data following the MEDD format with some minor variances. These variances are minor in nature and will not inhibit US EPA from loading the MEDDs to EQuIS in order to complete an independent assessment of the data. The variances proposed to the MEDD format are described in the following section.

MEDD Variance

The MEDD format requires the submittal of nine tables with each electronic data submittal. Each table contains a number of fields that must be populated in order to successfully load the MEDD to EQuIS. In addition, each table also contains fields for data that are not required to load the data to EQuIS but are requested by US EPA. Due to a difference in the design of the EQuIS and TDMS databases, some data associated with sample analysis cannot be extracted easily from TDMS and exported to the MEDD format.

TDMS utilizes two databases in order to store the data as originally reported by the laboratory separately from data that have been validated. The Master database contains all raw data reported from the laboratory including QA/QC information (i.e., MS/MSD results, surrogate recoveries, method blanks, etc.). The Central Database contains data that have been validated and is exclusive of lab QA/QC information).

Automated data validation occurs after the data have been loaded to the Master database but prior to loading to the Central database. This database structure expedites the speed in which queries are executed against the database and prevents the misidentification of QA/QC data as investigative sample results. In order to ensure that Sherwin-Williams delivers data that have undergone data validation and is acceptable for data interpretation, the MEDDs must be exported from the Central database. However, the Central database does not contain lab information such as extraction dates and times, analysis dates and times, etc. as this information is maintained in the Master database.

The specific information that can ot be easily exported to the MEDDs is listed below by MEDD table for your review:

Location Table

- Surface Elevation – ground surface elevation data will only be available for monitoring well locations. Although this data can be obtained for soil boring locations from the topographic map created from the site it is not maintained in the database. Additionally, surface water and sediment elevation data will not be collected as part of the RI.

Test Results Table

- Analysis_date – These data were used during the data validation process and are not stored in the Central database.
- Analysis_time – These data were used during the data validation process and are not stored in the Central database.
- Test_type – The data delivered in the MEDD will be the final represented result. The test type is not stored in the Central database.
- Detect_flag – During data validation the original lab flag is overwritten if the data is rejected. Therefore, we can't identify those constituents that were detected by the lab but rejected during validation. All other data will be represented in accordance with the MEDD specifications.

In addition, Sherwin-Williams requires clarification on the use of several valid values identified in the data dictionary to ensure the MEDD meets US EPA's expectations. These issues would be best resolved in a short conference call with US EPA personnel. The areas requiring clarification are organized by MEDD table below.

Field Results Table

- Sherwin-Williams needs clarification on medium and field matrix code.

Sample Info Table

- Sherwin-Williams needs clarification on medium and field matrix code.

Test Results Table

- Sherwin-Williams needs clarification on value type.

SUMMARY

Sherwin-Williams believes that this proposal satisfies US EPA's desire to receive the data in an electronic format, ensures that data quality meets the intended end use of the data, and fulfills US EPA's desire to complete an independent review of the data collected. In order to ensure that the MEDDs submitted to US EPA meet your expectations, Sherwin-Williams would like to convene a conference call to seek clarification on a few issues related to valid values. Please let us know when your team would be available to assist us.

If you have any questions or comments, please do not hesitate to contact me at 216-566-1794 or via e-mail at mlcapichioni@sherwin.com.

Sincerely,

Mary Lou Capichioni

Mary Lou Capichioni
Director, Remediation Services

Attachment

cc: Terri Bowers, Gradient
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30 March 2004

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U.S. Environmental Protection Agency
290 Broadway 19th Floor
New York, NY 10007-1866

20076.022.021

RE: Proposed Change to the Sample Identification Scheme
Gibbsboro, N.J. RI/FS

Dear Mr. Keveney:

Introduction

The purpose of this letter is to summarize a change to the Sample Identification scheme proposed by Sherwin-Williams for the Remedial Investigation (RI) at the Gibbsboro Site. The current structure is outlined in Section 5.6 of the Quality Assurance Project Plan (QAPP). Due to recent developments and advancements in technology, an alternative structure is necessary to maximize the effectiveness of the FieldFast sample management software we will be using.

The original Gibbsboro RI Sample ID scheme was written 4 years ago for the initial RI/FS Work Plan, well before the FieldFast software had been created. While this proposed sample ID structure would be sufficient for the purposes of the RI, it is incompatible with many of the automated management features of FieldFast. The alternate scheme proposed in this letter allows FieldFast to perform those automated tasks, while still maintaining the integrity of the sample ID system.

Original Structure

Section 5.6 of the QAPP summarizes the structure that was originally proposed. That structure is as follows:

Sample ID = Site - Matrix - (Sampling Location Type + 3-digit Location Number) - Sample Depth

Although complex, the structure was proposed to maintain the certainty that all samples would be unique throughout the project. Based on the tables listed in Section 5.6 of the QAPP, a soil sample collected from a boring at the Dump Site on the surface would be:

Sample ID = DM-SS-SB001-0.0-0.5

FieldFast will not be able to determine the Location ID (a point in space with unique XY coordinates) from this setup.

Proposed Structure

Due to the size of the Gibbsboro RI and the number of samples to be collected, the FieldFast software will be used for sample management throughout the project. This software has the ability to perform many automated tasks using programmed logic to improve efficiency and accuracy. In order for this to work, samples IDs have to be structured in a way that will allow the program to easily discern a Location ID from them. As a result, the alternate structure would be:

Location ID = (Site + Sampling Location Type + 4-digit Location Number)

Sample ID = Location ID - Matrix - Upper Depth Code - Lower Depth Code - Round (optional) - QC Code

This will allow FieldFast to identify Location IDs from the Sample IDs automatically as well as assign QC types. The added benefit of this scheme would be to easily associate samples of different matrices with the same location (e.g., well installation with both soil and groundwater sampling). The Round option would be used in cases of repeated sample collections at the same location (i.e., Groundwater Sampling).

Based on the tables listed below, the following would be the equivalent ID of the example given above:

Location ID = DMSB0001

Sample ID = DMSB0001-SS-A-B-0

This setup also accounts for the possibility of more than 1,000 sample locations at a particular site. Since sample depths are stored in separate fields within FieldFast (as well as the entire Data Management System), it is inefficient to enter them in the sample ID as well.

FieldFast uses a series of codes to automatically build the sample ID in the field. These codes, listed in the tables below, would be loaded in FieldFast prior to mobilization and used throughout the project. FieldFast forces the user to select one of these codes using drop-down menus in the program's interface, limiting the possibility of erroneous entries.

Site
DM - Route 561 Dump Site
BS - United States Avenue Burn Site
WS - White Sand Branch
HR - Haney Run Brook
BW - Bridgewood Lake
HC - Hilliard Creek
VL - Vacant Lot
RR - Railroad Track
BK - Background
SW - Site Wide (Groundwater, Residential Wells, etc.)

Sampling Location Type
SB - Soil Boring
MW - Monitoring Well
SP - Screening Point
DD - Sediment
DW - Surface Water
DB - Sediment and Surface Water

Matrix
SS - Soils
GW - Groundwater
SD - Sediments
SW - Surface Water

Sample Depth Code (feet)
A - 0.0
B - 0.5
C - 1.0
D - 1.5
...To...
Z - 12.5
AA - 13.0

AB - 13.5
AC - 14.0
AD - ...
(Most samples will be collected at a depth less than 12.5 keeping the use of double characters to a minimum.)

Round (Optional)
R1 - Round 1
R2 - Round 2
R3 - Round 3
R4 - etc...

QC Code
0 - Normal Sample
1 - Duplicate Sample
2 - Field Blank
3 - Trip Blank

If you have any questions or comments, please do not hesitate to contact me at 216-566-1794 or via e-mail at mlcapichioni@sherwin.com.

Sincerely,

Mary Lou Capichioni

Mary Lou Capichioni
Director, Remediation Services

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